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EXAMINER

JENNISON, BRIAN W

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,539	Applicant(s) SCANDELLA ET AL.	
	Examiner BRIAN JENNISON	Art Unit 4184	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/4/2008</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 1-8 , 10, 12-15, 21-23, 24, 25-26, and 32, 33-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

In claims 1 and 25, there is insufficient antecedent basis for “said given direction of relative movement” recited on lines 4-5 in the claim.

Claims 7, 15, 24 recite the limitations "the welding current, arc voltage, relative welding gun and substrate speeds, gun angle and stickout distances is adjusted" in lines 1-3 of the claims. There is insufficient antecedent basis for this limitation in the claim.

In claim 32, there is insufficient antecedent basis for “the rotating cylindrical substrate” recited at line 3 in the claim or from the preceding claim 25.

In claims 4, 12, 21 and 34, there is insufficient antecedent basis for “the profile(s) of the bead(s)” recited at lines 1-2 in the claim or from the preceding claim.

In claims 6 and 14, there is insufficient antecedent basis for “the so-monitored information” in the claim or from the preceding claim.

In claim 23, there is insufficient antecedent basis for “the monitored information” in the claim or from the preceding claim.

In claim 35, there is insufficient antecedent basis for “said monitoring” recited at line 2 in the claim or from the preceding claim. Such monitoring must be clearly defined.

In claim 10, there is insufficient antecedent basis for “the given direction of relative movement” recited on line 2 in the claim or from the preceding claim 9.

Claim 36 is vague and can not be clearly understood with respect to the recitation of “the method in dependence upon monitored information” recited on lines 2-3. Such method must be clearly defined.

In claim 37, the phrase “and a or the welding gun” recited on line 3 is unclear and thus it should read as “and the welding gun”. Furthermore, there is insufficient antecedent basis for “the welding gun” in the claim or from the preceding claim.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 9-11, 25-28, 33, and 37 as being best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Browne et al. (US 5,362,937).

Browne et al teaches:

Regarding Claim 1: A method of manufacturing a hardfaced plate by applying a cladding to a surface of a substrate by arc welding **(overlying weld metal onto metal plates or a substrate done by passing electricity through an electrode. See Column 1, lines 4-10)**, the method comprising moving the substrate **(The metal plates are moved by drive wheels 31. See Column 4, Lines 1-3)** and a continuous arc welding wire feed relative to each other **(welding wire 48 is fed through weld heads 49, relative to the plate 10, with electricity supplied to them for arc welding. See Column 4, Lines 32-35)**, wherein the welding wire feed is in a direction generally transverse to said given direction of relative movement. **(Fig 1 shows the wire 48 being fed generally sideways to the plate 10.)**

Regarding Claim 2: A method wherein the welding wire is fed by a welding gun to the surface of the substrate to be clad from one side of the given direction of relative movement at an acute angle to the surface of the substrate. **(Fig 1 shows the wire 48 being fed to the plate 10 to be clad at an acute angle.)**

Regarding Claims 3, 11, 33: A method wherein the cladding applied to the surface of the substrate is in the form of a continuous weld bead or a plurality of side-by-side weld beads. **(Fig 3 shows a plurality of weld beads being applied side by side.)**

Regarding Claim 9: A method of manufacturing a hardfaced plate by applying a cladding to a surface of a substrate by arc welding **(overlaying weld metal onto metal plates or a substrate done by passing electricity through an electrode. See Column 1, lines 4-10),,** the method comprising moving the substrate and a continuous arc welding wire feed relative to each other in a given direction **(welding wire 48 is fed through weld heads 49, relative to the plate 10, with electricity supplied to them for arc welding. See Column 4, Lines 32-35),,** wherein the welding wire feed is at an acute angle to that surface. **(Fig 1 shows the wire 48 being fed to the plate 10 to be clad at an acute angle.)**

Regarding Claim 10: A method wherein the welding wire feed is transverse of the given direction of relative movement. **(Fig 1 shows the wire 48 being fed generally sideways to the movement of plate 10.)**

Regarding Claim 25: Apparatus for manufacturing a hardfaced plate by applying a cladding to a surface of a substrate by arc welding, the apparatus comprising means arranged to move a substrate **(An apparatus for overlaying weld metal onto metal plates or a substrate done by passing electricity through an electrode is shown in Fig 1. A plate 10 is moved by rollers. See Column 1, lines 4-10),** and a continuous arc welding wire feed relative to each other **(welding wire 48 is fed through weld heads 49, relative to the plate 10, with electricity supplied to them for arc welding.**

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See Column 4, Lines 32-35),and means arranged to direct the welding wire feed in a direction generally transverse to said given direction of relative movement. **(Fig 1 shows the wire 48 being fed generally sideways to the plate 10.)**

Regarding Claim 26: Apparatus according to claim 25, wherein welding wire is arranged to be fed by a welding gun to the surface of the substrate to be clad from one side of the given direction of relative movement at an acute angle to the surface of the substrate. **(Fig 1 shows the wire 48 being fed to the plate 10 to be clad at an acute angle to the surface of the plate.)**

Regarding Claim 27: Apparatus for manufacturing a hardfaced plate by applying a cladding to a surface of a substrate by arc welding, the apparatus comprising means arranged to move the substrate **(An apparatus for overlaying weld metal onto metal plates or a substrate done by passing electricity through an electrode is shown in Fig 1. A plate 10 is moved by rollers. See Column 1, lines 4-10),** and a continuous arc welding wire feed relative to each other in a given direction **(welding wire 48 is fed through weld heads 49, relative to the plate 10, with electricity supplied to them for arc welding. See Column 4, Lines 32-35),**and means arranged to direct the welding wire feed at an acute angle to the substrate surface to be clad. **(Fig 1 shows the wire 48 being fed to the plate 10 to be clad at an acute angle to the surface of the plate.)**

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Regarding Claim 28: Apparatus wherein said welding wire feed directing means is arranged to direct the welding wire feed transversely of said given direction of relative movement. **(Fig 1 shows the wire 48 being fed generally sideways to the plate 10.)**

Regarding Claim 37: Apparatus including means arranged to oscillate the wire feed transversely to the direction of relative movement between the substrate surface and/or the welding gun. **(The weld head assembly 30 has a reciprocating carrier 40 for transverse reciprocation or oscillation of the weld head in relation to the surface of plate 10. See)**

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-7, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al in view of Nadeau et al (US 4,733,051).

The teachings of Browne have been discussed above.

Browne fails to teach:

Regarding Claims 4, 12: A method wherein the profile(s) of the weld bead(s) is monitored.

Regarding Claims 5, 13: A method wherein said monitoring is carried out as part of a procedure to maintain a desired profile for the cladding.

Regarding Claims 6, 14: A method wherein the so-monitored information is used to adjust at least one working parameter of the method.

Regarding Claims 7, 15: A method wherein at least one of the welding current, arc voltage, relative welding gun and substrate speeds, gun angle and stickout distances is adjusted.

Nadeau teaches:

Regarding Claims 4, 12: monitoring the weld bead depth. **See Column 5, Lines 19-30**

Regarding Claims 5, 13: the monitoring is carried out to maintain a desired weld bead depth and is capable of being applied to cladding. **See Column 5, Lines 25-30.**

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Regarding Claims 6-7, 14-15: the working parameters are adjusted based on monitoring, including travel speed, wire feed rate, arc voltage, pivoting the welding arm, and moving it towards or away from the substrate. **See Column 5, Lines 45-60**

In view of Nadeau et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to include with the teachings of Browne et al, the weld bead monitoring for a desired cladding profile, the working parameter adjustment, arc voltage, gun speed, gun angle since Nadeau teaches monitoring the depth of a weld bead to maintain a desired height and adjusting the gun travel speed, arc voltage and pivot of the arm for comparing the depth of a weld and adjusting the weld parameters to keep the weld depth at a desired depth.

8. Claims 8, 16, 17-24, 29-32, 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al as modified by Nadeau et al and further in view of Carpenter et al (US 2,427,350).

The teachings of Browne et al as modified by Nadeau et al have been discussed above.

Browne et al as modified by Nadeau et al also teaches:

Regarding Claim 17: A method of manufacturing a hardfaced plate by applying a cladding to a surface of a substrate by arc welding, applying continuous arc welding

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wire feed to the surface **(overlaying weld metal onto metal plates or a substrate done by passing electricity through an electrode. See Column 1, lines 4-10),**

Regarding Claims 18, 31: A method wherein welding wire is fed by a welding gun to the surface of the substrate to be clad at an acute angle to that surface. **(Fig 1 shows the wire 48 being fed to the plate 10 to be clad at an acute angle to the surface of the plate.)**

Regarding Claim 19: A method wherein welding wire is fed to the substrate surface transversely to the direction in which the substrate is moving. **(Fig 1 shows the wire 48 being fed generally sideways to the plate 10.)**

Regarding Claim 20: A method wherein the cladding applied to the surface of the rotating substrate is in the form of a continuous weld bead or plurality of side-by-side weld beads. **(Fig 3 shows a plurality of weld beads being applied side by side.)**

Regarding Claims 21, 34: A method wherein the profile(s) of the weld bead(s) is monitored. **(Monitoring the weld bead depth. See Column 5, Lines 19-30)**

Regarding Claims 22, 35: A method wherein said monitoring is carried out as part of a procedure to maintain a desired profile for the cladding. **(The monitoring is carried out**

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to maintain a desired weld bead depth and is capable of being applied to cladding. See Column 5, Lines 25-30.)

Regarding Claims 23-24, 36: A method wherein at least one of the welding current, arc voltage, relative welding gun and substrate speeds, gun angle and stickout distances is adjusted. **(The working parameters are adjusted based on monitoring, including travel speed, wire feed rate, arc voltage, pivoting the welding arm, and moving it towards or away from the substrate. See Column 5, Lines 45-60)**

Regarding Claim 29: Apparatus for manufacturing a hardfaced plate by applying a cladding to a surface of a substrate by arc welding, which apparatus comprises continuous arc welding wire feed to the surface of the substrate at a level below the uppermost region of the substrate surface. **(An apparatus for overlaying weld metal onto the surface of metal plates or a substrate done by passing electricity through an electrode is shown in Fig 1. See Column 1, lines 4-10)**

Regarding Claim 30: Apparatus according to claim 29, wherein welding wire is arranged to be fed by a welding gun to the surface of the substrate to be clad from one side of the substrate in use. **(Fig 1 shows the wire 48 being fed to the plate 10 to be clad on one side of the surface of the plate.)**

Browne et al as modified by Nadeau et al fails to teach:

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Regarding Claim 17: which method comprises forming the substrate into a cylindrical shape, rotating the so-formed cylindrical substrate about a substantially horizontal axis, rotating substrate at a level below the uppermost level of the rotating cylindrical substrate.

Regarding Claims 18, 19, 30, 31: rotating substrate

Regarding Claim 29: rotatable means arranged to receive thereon a substrate to be clad, means for rotating the rotatable means, and hence a substrate received thereon, about a generally horizontal axis, and means arranged to apply, in use, of the rotating substrate at a level below the uppermost region of the rotating substrate surface.

Carpenter et al teaches:

Regarding Claims 17, 18, 19: Fig 4 shows the sheet which has been formed into a cylinder 10 rotating around a horizontal axis with cladding being applied by arc welding at the surface of the substrate.

Regarding Claim 29-31: Fig 4 shows a rotatable means 18 for receiving a cylindrical substrate 10 and rotating it around a horizontal axis with a means for applying cladding to the surface of the cylindrical substrate.

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In view of Carpenter et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to include with the teachings of Browne as modified by Nadeau, the forming the substrate into a cylindrical shape, rotating the so-formed cylindrical substrate about a substantially horizontal axis, rotating substrate at a level below the uppermost level of the rotating cylindrical substrate, rotatable means arranged to receive thereon a substrate to be clad, means for rotating the rotatable means, and hence a substrate received thereon, about a generally horizontal axis, and means arranged to apply, in use, of the rotating substrate at a level below the uppermost region of the rotating substrate surface since, Carpenter teaches the sheet formed into a cylinder and rotating it around a horizontal axis a rotatable means for receiving a cylindrical substrate so a continuous cladding, with uniform thickness may be continuously applied to the cylindrical surface for strengthening the cylinder using arc welding.

Browne et al as modified by Nadeau et al fails to teach:

Regarding Claim 32: Apparatus according to claim 29, wherein an arc welding gun is spaced from but movable across the surface of the substrate axially of the rotating cylindrical substrate, in use.

Carpenter et al teaches:

Regarding Claim 32: Fig 4 shows a welding gun spaced from the surface but movable along rails across the surface of the rotating cylindrical substrate.

In view of Carpenter et al's teachings it would have been obvious to one of ordinary skill in the art at the time of the invention to include with the teachings of Browne as modified by Nadeau, the welding gun movable across the surface of the substrate axially of the rotating cylindrical substrate since Carpenter teaches the welding head movable along the axis of the cylinder for applying a continuous cladding strip along the surface of the substrate axially of the rotating cylinder while the cylinder rotates.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hannu (US 5,516,053) teaches a welded metal hardfacing pattern.

Landry (US 4,948,936) teaches a welding process for applying cladding to a cylindrical surface.

Jackson (US 5,942,289) teaches hardfacing a surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN JENNISON whose telephone number is (571)270-5930. The examiner can normally be reached on M-Th 7:00AM-5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN JENNISON/

Examiner, Art Unit 3742

2/10/2009

/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742